

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-3 (canceled).

Claim 4 (new): An angular velocity measuring device comprising:

a substrate;

an angular velocity detection element having a vibrating body disposed in the substrate so as to be vibrated in first and second axial directions out of three axial directions corresponding to three axes disposed at right angles to each other, a driving element arranged to vibrate the vibrating body in the first axial direction using a drive signal, and a displacement detecting element arranged to detect displacement in the second axial direction of the vibrating body and output a detection signal when an angular velocity is applied around the third axis while the vibrating body is vibrated in the first axial direction;

drive wiring disposed in the substrate and connected to the driving element of the angular velocity detection element;

detection wiring disposed in the substrate and connected to the displacement detecting element of the angular velocity detection element; and

a signal processing element disposed in the substrate and connected to the drive wiring and the detection wiring; wherein

the substrate is a multilayer substrate including a plurality of insulation layers;

the detection wiring is disposed between two of the plurality of insulation layers inside the multilayer substrate;

low-impedance wiring facing the detection wiring is disposed at a location different from the detection wiring in the thickness direction of the multilayer substrate therein;

the angular velocity detection element includes an element-side drive electrode connected to the driving element, an element-side detection electrode connected to the displacement detecting element, and an element-side low-impedance electrode located between the element-side drive electrode and the element-side detection electrode arranged to cut off the coupling between the element-side drive electrode and the element-side detection electrode located on a mounting surface side of the multilayer substrate;

on the top surface of the multilayer substrate, a substrate-side drive electrode connected to the drive wiring and facing the element-side drive electrode, a substrate-side detection electrode connected to the detection wiring and facing the element-side detection electrode, and a substrate-side low-impedance electrode positioned between the substrate-side drive electrode and the substrate-side detection electrode arranged to cut off the coupling between the substrate-side drive electrode and the substrate-side detection electrode are provided;

the angular velocity detection element is mounted on a top surface of the multilayer substrate via metal bumps;

the element-side drive electrode and the substrate-side drive electrode are connected via metal bumps;

the element-side detection electrode and the substrate-side detection electrode are connected via metal bumps;

the element-side low-impedance electrode and the substrate-side low-impedance electrode are connected at a low-impedance reference potential; and

the element-side low-impedance electrode and the substrate-side low-impedance electrode are arranged to at least partially face each other.

Claim 5 (new): The angular velocity measuring device according to Claim 4, wherein the multilayer substrate includes three insulation layers.

Claim 6 (new): The angular velocity measuring device according to Claim 4, wherein the multilayer substrate includes four insulation layers.

Claim 7 (new): The angular velocity measuring device according to Claim 4, wherein the element-side drive electrode is island-shaped.

Claim 8 (new): The angular velocity measuring device according to Claim 4, wherein the element-side detection electrode is island-shaped.

Claim 9 (new): The angular velocity measuring device according to Claim 4, wherein the element-side low-impedance electrode is defined by a ground electrode that substantially covers the entire mounting surface side of the multilayer substrate, except for locations at which the element-side drive electrode and the element-side detection electrode are disposed.

Claim 10 (new): The angular velocity measuring device according to Claim 4, wherein the element-side detection electrode is disposed in a central portion of mounting surface side of the multilayer substrate.

Claim 11 (new): The angular velocity measuring device according to Claim 4, wherein the substrate-side detection electrode is island-shaped.

Claim 12 (new): The angular velocity measuring device according to Claim 4, wherein the substrate-side low-impedance electrode is defined by a ground electrode that substantially covers an entire portion of the substrate that faces the angular velocity detection element, except at locations at which the substrate-side drive electrode and the substrate-side detection electrode are disposed.

Claim 13 (new): The angular velocity measuring device according to Claim 4, wherein the substrate-side detection electrode is disposed in a central portion of the substrate.

Claim 14 (new): An angular velocity measuring device comprising:

a substrate;

an angular velocity detection element having a vibrating body disposed in the substrate so as to be vibrated in first and second axial directions out of three axial directions corresponding to three axes disposed at right angles to each other, a driving element arranged to vibrate the vibrating body in the first axial direction by a drive signal, and a displacement detecting element arranged to detect displacement in the second axial direction of the vibrating body and output a detection signal when an angular velocity is applied around the third axis while the vibrating body is vibrated in the first axial direction;

drive wiring disposed in the substrate and connected to the driving element of the angular velocity detection element;

detection wiring disposed in the substrate and connected to the displacement detecting element of the angular velocity detection element; and

a signal processing element disposed in the substrate and connected to the drive wiring and the detection wiring; wherein

the substrate is a multilayer substrate including a plurality of insulation layers;

the detection wiring is disposed between two of the plurality of insulation layers inside the multilayer substrate;

low-impedance wiring having a low impedance facing the detection wiring is disposed at a location different from the detection wiring in the thickness direction of the multilayer substrate therein;

the angular velocity detection element includes an element-side drive electrode connected to the driving element, an element-side detection electrode connected to the displacement detecting element, and an element-side low-impedance electrode enclosing one of the element-side drive electrode or the element-side detection electrode arranged to cut off the coupling between the element-side drive electrode and the element-side detection electrode located on the mounting surface side to the multilayer substrate;

on the top surface of the multilayer substrate, a substrate-side drive electrode connected to the drive wiring and facing the element-side drive electrode, a substrate-side detection electrode connected to the detection wiring and facing the element-side detection electrode, and a substrate-side low-impedance electrode enclosing one of the substrate-side drive electrode or the substrate-side detection electrode arranged to cut off the coupling between the substrate-side drive electrode and the substrate-side detection electrode are provided;

the angular velocity detection element is mounted on the top surface of the multilayer substrate via metal bumps;

the element-side drive electrode and the substrate-side drive electrode are connected via metal bumps;

the element-side detection electrode and the substrate-side detection electrode are connected via metal bumps;

the element-side low-impedance electrode and the substrate-side low-impedance electrode are connected at a low-impedance reference potential; and

the element-side low-impedance electrode and the substrate-side low-impedance electrode are arranged to at least partially face each other between the element-side drive electrode and the element-side detection electrode.

Claim 15 (new): The angular velocity measuring device according to Claim 14, wherein an opposite portion, in which the element-side low-impedance electrode and the substrate-side low-impedance electrode face each other, encloses the element-side detection electrode and the substrate-side detection electrode.

Claim 16 (new): The angular velocity measuring device according to Claim 14, wherein the multilayer substrate includes three insulation layers.

Claim 17 (new): The angular velocity measuring device according to Claim 14, wherein the multilayer substrate includes four insulation layers.

Claim 18 (new): The angular velocity measuring device according to Claim 14, wherein the element-side drive electrode is island-shaped.

Claim 19 (new): The angular velocity measuring device according to Claim 14, wherein the element-side detection electrode is island-shaped.

Claim 20 (new): The angular velocity measuring device according to Claim 14, wherein the element-side detection electrode is disposed in a central portion of mounting surface side of the multilayer substrate.

Claim 21 (new): The angular velocity measuring device according to Claim 14, wherein the substrate-side detection electrode is island-shaped.

Claim 22 (new): The angular velocity measuring device according to Claim 14, wherein the substrate-side low-impedance electrode is defined by a ground electrode that substantially covers an entire portion of the substrate that faces the angular velocity detection element, except at locations at which the substrate-side drive electrode and the substrate-side detection electrode are disposed.

Claim 23 (new): The angular velocity measuring device according to Claim 14, wherein the substrate-side detection electrode is disposed in a central portion of the substrate.